

IN THE CLAIMS

Please cancel claims 1-16

Please add new claims 17-43 as follows:

1 17. (New) A switch comprising:
2 a plurality of ports; and
3 a mechanism to determine which one of the plurality of ports is coupled to a destination
4 device and to transfer information to the destination device without use of a routing protocol.

1 18. (New) The switch of claim 17, wherein the plurality of ports includes (i) a first
2 plurality of ports coupled to a plurality of devices, including the destination device, associated
3 with at least two networks, and (ii) a second plurality of ports coupled to a router.

1 19. (New) The switch of claim 18, wherein the networks are virtual local area
2 networks.

1 20. (New) The switch of claim 18, wherein the mechanism analyzes data transmitted
2 between the router and the destination device.

1 21. (New) The switch of claim 20, wherein the data is packetized in accordance with
2 an Address Resolution Protocol.

1 22. (New) The switch of claim 17, wherein the mechanism generates a table
2 including layer two (L2) addresses and corresponding layer three (L3) addresses associated with
3 the destination device prior to transferring information to the destination device.

1 23. (New) The switch of claim 18, wherein the destination device includes a server
2 associated with one of the at least two networks.

1 24. (New) A switch comprising:
2 a plurality of ports adapted for coupling together a plurality of networks and a router; and
3 a mechanism to (a) analyze information transferred from a source device of a first
4 network to a destination device of a second network, (b) store information identifying a port
5 coupled to the second network, a layer two (L2) address of the destination device and a layer
6 three (L3) address of the destination device, and (c) using the information to forward data
7 between the plurality of networks.

1 25. (New) The switch of claim 24, wherein the information is obtained from packets
2 configured in accordance with an Address Resolution Protocol.

1 26. (New) The switch of claim 24, wherein the mechanism uses the information by
2 (i) determining both the L2 address of the destination device and the port coupled to the second
3 network based on the L3 address of the destination device supplied by the source device, and (ii)
4 setting a destination of packets of the data to the L2 address of the destination device.

1 27. (New) For use in transferring data from a first network to a second network via a
2 switch interposed between a router and the first and second networks without assistance by the
3 router, the method comprising:
4 receiving a data packet by the switch, the data packet originating from a source device
5 associated with the first network and including a layer three (L3) address of a destination device
6 of the second network;

7 determining the L2 address associated with the L3 address of the destination device and a
8 port of the switch to which the destination device associated with the L3 address is attached; and
9 setting a destination address of the data packet to the L2 address.

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1 28. (New) A network comprising:
2 a destination device of a first network;
3 a source device of a second network;
4 a router; and
5 a switch having a plurality of ports supporting communication to the destination device,
6 the source device and the router, the switch including software to determine which one of the
7 plurality of ports is coupled to the destination device and to transfer information from the source
8 device to the destination device without use of a routing protocol.

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1 29. (New) The network of claim 28, wherein the first network is separate and distinct
2 from the second network.

1 30. (New) A learning internetwork switch for use in a network including a plurality
2 of local area networks, the learning internetwork switch comprising:
3 first port means for connecting to a set of local area networks;
4 second port means for connecting to a router to allow a device of a selected local area
5 network of the plurality of local area networks to communicate with the router through a
6 transmission of packets;
7 means for inspecting control packets sent between the router and the device;
8 means for storing association data that indicates a correspondence between data link layer
9 addresses, network layer addresses, and the first port means based on information contained in
10 the control packets; and

11 means for forwarding traffic between locally attached local area networks using the
12 association data.

1 31. (New) The learning internetwork switch of claim 30 further comprising third port
2 means for connecting the router to the second port means.

1 32. (New) The learning internetwork switch of claim 31, wherein the means for
2 storing is further configured to store data indicating a correspondence between data link layer
3 addresses of the third port means and network layer addresses of the third port means based on
4 information contained in the control packets.

1 33. (New) The learning internetwork switch of claim 30 further including a proxy
2 forwarding mechanism for (1) detecting when a packet sent by a first device of a first local area
3 network in the set of local area networks contains a data link layer destination address associated
4 with the router and a network layer destination address associated with a second device of a
5 second local area network in the set of local area networks, (2) determining the data link layer
6 address of the second device based on the network layer address of the second device, (3)
7 replacing in the packet the data link layer destination address associated with the router with the
8 data link layer address associated with the second device, and (4) transmitting the packet through
9 the port of the first set of ports to which the second device is connected.

1 34. (New) The learning internetwork switch of claim 30, wherein a control packet
2 includes a packet that requests a data link layer address of a port of the router.

1 35. (New) The learning internetwork switch of claim 34, wherein a request packet
2 contains a data link layer source address associated with the device sending the packet, a network

3 layer source address associated with the device sending the packet, and a network layer
4 destination address associated with the port of the router.

1 36. (New) The learning internetwork switch of claim 33, wherein the proxy
2 forwarding mechanism further (1) determines a data link layer address associated with a port of
3 the router which serves as a default gateway to the second local area network, and (2) replaces in
4 the packet the data link layer source address associated with the first device with the data link
5 layer address associated with the port of the router which serves as the default gateway to the
6 second local area network.

1 37. (New) For use in transferring data from a first network to a second network via a
2 switch interposed between a router and the first and second networks without assistance by the
3 router, the method comprising:

4 receiving a data packet by the switch, the data packet originating from a source device
5 associated with the first network and including a layer three (L3) address of a destination device
6 of the second network;

7 determining the L2 address associated with the L3 address of the destination device and a
8 port of the switch to which the destination device associated with the L3 address is attached; and

9 setting a destination address of the data packet to the L2 address.

1 38. (New) The method of claim 37, wherein the first and second remarks are virtual
2 local area networks.

1 39. (New) A learning internetwork switch for use in a network including a plurality
2 of virtual local area networks, the learning internetwork switch comprising:

3 a first set of ports connecting the learning internetwork switch to a set of virtual local area
4 networks, wherein each virtual local area network of the set of virtual local area networks is a

5 virtual local area network of the plurality of virtual local area networks that is locally attached to
6 the learning internetwork switch;

7 a second set of ports connecting the learning internetwork switch to a router, wherein
8 devices that belong to the virtual local area networks of the set of local area networks
9 communicate with the router by transmitting packets through the learning internetwork switch;

10 a learning mechanism that inspects control packets sent between the router and the
11 device, the learning mechanism storing association data that indicates a correspondence between
12 data link layer addresses, network layer addresses, and the first set of ports based on information
13 contained in the control packets; and

14 the learning internetwork switch using the association data to forward traffic between
15 locally attached virtual local area networks.

1 40. (New) The learning internetwork switch of claim 39 further comprising a third
2 set of ports on the router connected to the second set of ports.

1 41. (New) The learning internetwork switch of claim 40, wherein the leaning
2 mechanism is further configured to store data indicating a correspondence between data link
3 layer addresses of the third set of ports and network layer addresses of the third set of ports based
4 on information contained in the control packets.

1 42. (New) The learning internetwork switch of claim 39, wherein the control packets
2 include packets which are request packets that request a data link layer address of a port of the
3 router.

1 43. (New) The learning internetwork switch of claim 42, wherein a request packet
2 contains a data link layer source address associated with the device sending the packet, a network